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EXAMINER	
ARANCIBIA, MAUREEN GRAMAGLIA	
ART UNIT	**PAPER NUMBER**
1763	

DATE MAILED: 12/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/055,310	NOORBAKHSH ET AL.	
	Examiner	Art Unit	
	Maureen G. Arancibia	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 September 2006 and 26 September 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11-26,28-33 and 35-46* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11-26,28-33 and 35-46* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 September 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claim 11, 15, 20, 21, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shan et al., EP 0 814 495 in view of Collins et al., EP 0 807 953 or Loewenhardt et al., U.S. Patent 6,030,486.

Shan et al. shows the invention as claimed including a thermally controlled apparatus for lining a processing region defined at least partially by cylindrical sidewalls, a substrate support 18, and a bottom of a processing chamber, comprising: a liner 10 for lining the sidewalls of the chamber and adapted to be removably disposed in the processing region and having an aluminum base for substantially covering the bottom of

the processing chamber and wherein the liner further comprises: an outer cylindrical wall contacting an outer edge of the base for extending into the processing region along the sidewalls, the outer cylindrical wall having a first lip/protrusion 14 spaced above the base; and an inner cylindrical wall connected to an inner edge of the base for extending into the processing region along the substrate support, the inner cylindrical wall having a second lip/protrusion 16 located opposite the first protrusion. The inner cylindrical wall is sized to cover the substrate support with minimal clearance, in that it is fitted to the substrate support. (Figure 1) Liner 10 comprises a second liner (upper portion of liner 10) coupled to the outer cylindrical wall along the sidewalls of the chamber, extending to a lid assembly 24, and comprising an outwardly extending flange. (Figure 1)

Shan et al. does not expressly disclose a magnet located in the second protrusion on the inner cylindrical wall of the liner. Collins et al. discloses the use of magnets 80, 82 in walls of the apparatus for plasma confinement (see fig. 4A and its description). Alternatively, Loewenhardt et al. also discloses the use of magnets 80 for plasma confinement (see figs. 4A-4B and their descriptions). In view of these disclosures, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Shan et al. as to further comprise a magnet disposed in the second protrusion in order to confine the plasma to the chamber.

4. Claims 12, 14, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shan et al. in view of Collins et al. or Loewenhardt et al. as

applied to claim 11 above, and further in view of Lee, U.S. Patent 5,616,208 or Masuda et al., U.S. Patent 6,171,438.

Shan et al., Collins et al., and Loewenhardt et al. are applied as above but do not expressly disclose wherein a circular passage is formed at least partially in the base and the passage is adapted to fluidly isolate a heat transfer fluid flowing through the base. Lee discloses using an annular heat medium passage with circular cross-section (123,129), as broadly recited in the claims, formed so as to prevent deposition on the surfaces exposed to plasma, wherein the passage is formed at least partially in the base and the passage is adapted to fluidly isolate a heat transfer fluid flowing through the base (see fig. 1 and its description). Alternatively, Masuda et al. discloses an apparatus comprising a liner 103 having a circular heat exchanging medium supply means 104 to control the temperature of the side wall 102 (Figure 1). In view of these disclosures, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Shan et al. modified by Collins et al. or Loewenhardt et al., by supplying a heat transfer medium through the liner because this allows for the formation of a strong polymerized film on the exposed walls and reduces instances of flaking or, alternatively, so as to control the temperature of the surfaces exposed to the gases (plasma) because this will prevent the deposition of by-products on the exposed walls.

5. Claims 13, 16, 17, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shan et al. in view of Collins et al. or Loewenhardt et al. as

applied to Claim 11 above, and further in view of Lee or Masuda et al., and further in view of Reimold et al., DE 31 10489 A1.

The teachings of Shan et al., Collins et al., and Loewenhardt et al. were discussed in regards to Claim 11. The teachings of Lee and Masuda et al. are applied as above in regards to Claims 12 and 14. Note that the combination of Shan et al., Collins et al. or Loewenhardt et al., and Lee or Masuda et al. inherently teaches the provision of apertures in the bottom of the processing chamber for the introduction of the heat transfer fluid, so as to supply the heat transfer fluid to the heat medium passage. However, in regards to Claims 13 and 16, the combination of Shan et al., Collins et al. or Loewenhardt et al., and Lee or Masuda et al. does not expressly disclose the use of bosses. Reimold discloses the use of bosses for providing connection for the supply or the removal of a heat exchanging (see equivalent abstract). Therefore, in view of this disclosure, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use bosses in the apparatus of Shan et al. modified by Collins et al. or Loewenhardt et al. and further modified by Lee or Masuda et al. in order to provide connection for the supply and removal of the heat exchanging medium.

In regards to Claims 17 and 19, the bosses taught by the combination of Shan et al., Collins et al. or Loewenhardt et al., Lee or Masuda et al., and Reimold et al. would be structurally capable of participating in aligning the base relative to the bottom of the processing chamber, based on the position of the bosses relative to the apertures to supply the heat transfer fluid, and of comprising a quick-connect coupling, which refers

to an intended use of the bosses to be "quickly" connected. It has been held that claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Danly*, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). Also, a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987)

6. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shan et al. in view of Collins et al. or Loewenhardt et al. as applied to Claim 11, and further in view of U.S. Patent 4,483,737 to Mantei.

Shan et al., Collins et al., and Loewenhardt et al. are applied as above but do not expressly disclose that the magnet comprises samarium. Mantei discloses that magnets 14 for a plasma processing apparatus can comprise samarium. (Column 4, Lines 45-56) Therefore, in view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Shan et al. modified by Collins et al. and Loewenhardt et al. to use a magnet comprising samarium, so as to have magnets with better field strength. (Mantei, Column 4, Lines 52-56)

7. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shan et al. in view of Collins et al. or Loewenhardt et al. as applied to claim 11 above, and further in view of Banholzer et al., U.S. Patent 5,565,058.

Shan et al., Collins et al., and Loewenhardt et al. are applied as above but do not expressly disclose that the liner comprises a textured surface. Banholzer et al. discloses a vacuum chamber comprising a liner that is treated to roughen its surface to create a textured surface for increasing adhesion of materials deposited thereon during substrate processing. Therefore, in view of this disclosure, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Shah et al. modified by Collins et al. and Loewenhardt et al. so as to texture the interior surface of the liner in order to increase adhesion of materials deposited thereon during substrate processing.

8. Claims 25-26, 28-31, 36, 40, 45, and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shan et al. in view of Lee or Masuda et al. and further in view of Reimold et al., DE 31 10489 A1.

Shan et al. shows the invention substantially as claimed including a thermally controlled apparatus for lining a processing region defined at least partially by sidewalls and a bottom of a processing chamber, comprising: an annular aluminum base having a perimeter, for substantially covering the bottom of the processing chamber; and a first cylindrical wall extending from the perimeter of the base for extending into the processing region along the sidewalls of the chamber and adapted to line at least a portion of the walls of the processing chamber; a removable center section (top center part of member 10) coupled to one end of the cylindrical section, the cylindrical section and the center section being exposed to the processing region and comprising a single piece structure, for substantially covering an upper surface of the chamber; a second

cylindrical wall coupled to an inner portion of the base for extending into the processing region along a substrate support positioned therein; wherein the first cylindrical wall comprises a ridge/lip extending radially from the first cylindrical wall toward the second cylindrical wall in a spaced-apart relation to the base; a lid 24 disposed opposite the cylindrical wall, the lid and the wall defining a plenum at least partially therebetween (see fig. 1); a plurality of nozzles disposed in the center member providing fluid access to the plenum; a gas feedthrough fluidly coupled to the plenum through a hole disposed in the lid. For a complete description of the apparatus see fig. 1, page 3-line 20 to page 4-line 45, page 8, lines 36-42, and page 9, lines 7-46. Shan et al. does not expressly disclose a first boss and a second boss projecting from the base, the first boss comprising a hole in fluid communication with the passage at an inlet of the passage, and the second boss comprising a hole in fluid communication with the passage at an outlet of the passage, wherein the first boss and the second boss are configured to extend throughout the processing chamber. Lee discloses using an annular heat medium passage (123,129) isolated from the process volume and formed so as to prevent deposition on the surfaces exposed to plasma, wherein the passage is formed at least partially in the base and the passage is adapted to fluidly isolate a heat transfer fluid flowing through the base (see fig. 1 and its description). Alternatively, Masuda et al. discloses an apparatus comprising a liner 103 having a heat exchanging medium supply means 104 isolated from the process volume to control the temperature of the side wall 102. In view of these disclosures, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Shan et al.

by supplying a heat transfer medium through the liner because this allows for the formation of a strong polymerized film on exposed walls and reduces instances of flaking or, alternatively, so as to control the temperature of the surfaces exposed to the gases (plasma) because this will prevent the deposition of by-products on the exposed walls.

With respect to the use of bosses, Reimold discloses the use of bosses for connection for the supply or the removal of a heat exchanging medium (see equivalent abstract). Therefore, in view of this disclosure, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use bosses in the apparatus of Shan et al. modified by Lee or Masuda et al. in order to provide connection for the supply and removal of the heat exchanging medium.

Concerning claim 30, note that Shan et al. also includes a second cylindrical wall coupled to an inner portion of the base.

In regards to Claims 40 and 45, the bosses taught by the combination of Shan et al., Lee or Masuda et al., and Reimold et al. would be structurally capable of participating in aligning the base relative to the bottom of the processing chamber, based on the position of the bosses relative to the apertures to supply the heat transfer fluid. It has been held that claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Danly*, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). Also, a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all

the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987)

In regards to Claim 46, the combination of Shan et al., Lee or Masuda et al., and Reimold et al. does not expressly teach that an o-ring provides a seal between the processing chamber and the center section.

However, Shan et al. additionally teaches that o-rings can be provided between two components to form a vacuum seal for the processing chamber. (Page 3, Lines 39-45) Therefore, in view of this disclosure, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Shan et al., Lee or Masuda et al., and Reimold et al. to have an o-ring provide a seal between the processing chamber and the center section, in order to maintain a vacuum seal for the processing chamber.

9. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shan et al. in view of Lee or Masuda et al. and further in view of Reimold et al. as applied to claim 25 above, and further in view of Banholzer et al.

Shan et al., Lee, Masuda et al., and Reimold et al. are applied as above but do not expressly disclose that the liner comprises a textured surface. Banholzer et al. discloses a vacuum chamber comprising a liner that is treated to roughen its surface to create a textured surface for increasing adhesion of materials deposited thereon during substrate processing. Therefore, in view of this disclosure, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Shah et al. modified by Lee and Masuda et al. so as to texture the interior

surface of the liner in order to increase adhesion of materials deposited thereon during substrate processing.

10. Claims 33, 35, 37-39 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shan et al. in view of Lee or Masuda et al.

Shan et al. shows the invention substantially as claimed including a thermally controlled apparatus for lining a processing region defined at least partially by sidewalls and a bottom of a processing chamber, comprising: an annular aluminum base having a perimeter, for substantially covering the bottom of the processing chamber; and a first cylindrical wall extending from the perimeter of the base for extending into the processing region along the sidewalls of the chamber and adapted to line at least a portion of the walls of the processing chamber; a removable center section (top center part of member 10) coupled to one end of the cylindrical section, the cylindrical section and the center section being exposed to the processing region and comprising a single piece structure, for substantially covering an upper surface of the chamber; a second cylindrical wall coupled to an inner portion of the base for extending into the processing region along a substrate support positioned therein; wherein the first cylindrical wall comprises a ridge/lip extending radially from the first cylindrical wall toward the second cylindrical wall in a spaced-apart relation to the base; a lid 24 disposed opposite the cylindrical wall, the lid and the wall defining a plenum at least partially therebetween (see fig. 1); a plurality of nozzles disposed in the center member providing fluid access to the plenum; a gas feedthrough fluidly coupled to the plenum through a hole disposed

in the lid. For a complete description of the apparatus see fig. 1, page 3-line 20 to page 4-line 45, page 8, lines 36-42, and page 9, lines 7-46.

Shan et al. does not expressly disclose a substantially annular passage formed at least partially in the base, the passage being fluidly isolated from the processing region. Lee discloses using an annular heat medium passage (123,129) isolated from the process volume and formed so as to prevent deposition on the surfaces exposed to plasma, wherein the passage is formed at least partially in the base and the passage is adapted to fluidly isolate a heat transfer fluid flowing through the base (see fig. 1 and its description). Alternatively, Masuda et al. discloses an apparatus comprising a liner 103 having a heat exchanging medium supply means 104 isolated from the process volume to control the temperature of the side wall 102. In view of these disclosures, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Shan et al. by supplying a heat transfer medium through the first and second cylindrical walls, the base and the center section because this allows for the formation of a strong polymerized film on the exposed walls and reduces instances of flaking and/or to control the temperature of the surfaces exposed to the gases (plasma) because this will prevent the deposition of by-products on the exposed walls.

In regards to Claim 44, the combination of Shan et al. and Lee or Masuda et al. inherently teaches the provision of apertures in the bottom of the processing chamber for the introduction of the heat transfer fluid, so as to supply the heat transfer fluid to the heat medium passage. However, the combination of Shan et al. and Lee or Masuda et

al. does not expressly teach that an o-ring provides a seal between the annular base and the annular passage.

However, Shan et al. additionally teaches that o-rings can be provided between two components to form a vacuum seal for the processing chamber. (Page 3, Lines 39-45) Therefore, in view of this disclosure, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Shan et al. and Lee or Masuda et al. to have an o-ring provide a seal between the annular base and the annular passage, in order to maintain a vacuum seal for the processing chamber.

11. Claims 41-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shan et al. in view of Lee or Masuda et al. as applied to Claim 33 above, and further in view of Reimold et al.

Shan et al. and Lee or Masuda et al. are applied as above. The combination of Shan et al. and Lee or Masuda et al. inherently teaches the provision of apertures in the bottom of the processing chamber for the introduction of the heat transfer fluid, so as to supply the heat transfer fluid to the heat medium passage. However, in regards to Claims 41 and 42, the combination of Shan et al. and Lee or Masuda et al. does not expressly disclose that the aperture is sized to receive a portion of the annular base, namely a boss coupled to the substantially annular passage.

Reimold discloses the use of bosses for connection for the supply or the removal of a heat exchanging medium (see equivalent abstract). Therefore, in view of this disclosure, it would have been obvious to one having ordinary skill in the art at the time

the invention was made to provide a boss coupled to the annular passage and received within the aperture in the processing chamber in the apparatus of Shan et al. modified by Lee or Masuda et al. in order to provide connection for the supply and removal of the heat exchanging medium.

In regards to Claim 43, the combination of Shan et al., Lee or Masuda et al., and Reimold et al. does not expressly teach that the first cylindrical wall and the annular base compress an o-ring positioned between the aperture and the annular base when the lid assembly (reference character 24 in Shan et al.) is coupled to the top of the processing chamber.

However, Shan et al. additionally teaches that o-rings can be provided between two components to form a vacuum seal for the processing chamber. (Page 3, Lines 39-45) Therefore, in view of this disclosure, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Shan et al., Lee or Masuda et al., and Reimold et al. to have the first cylindrical wall and the annular base compress an o-ring positioned between the aperture and the annular base when the lid assembly is coupled to the top of the processing chamber, in order to maintain a vacuum seal for the processing chamber.

12. Claims 36, 45, and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shan et al. in view of Miyamoto, U.S. Patent 5,846,331, and further in view of Reimold et al.

In regards to Claim 36, Shan et al. shows the invention as claimed including a thermally controlled apparatus for lining a processing region at least partially defined by

walls of a processing chamber, comprising: a cylindrical liner section adapted to line at least a portion of the walls of the processing chamber; a removable center section (top center part of member 10) coupled to one end of the cylindrical section, the cylindrical section and the center section being exposed to the processing region and comprising a single piece structure, for substantially covering an upper surface of the chamber; a flange (top outer part of member 10); wherein the inner wall is cylindrical and projects from the center member inside of the flange and a passage disposed in the center member having an inlet and an outlet (see fig. 1); a lid 24 disposed opposite the cylindrical wall, the lid and the wall defining a plenum at least partially therebetween (see fig. 1); a plurality of nozzles disposed in the center member providing fluid access to the plenum; a gas feedthrough fluidly coupled to the plenum through a hole disposed in the lid (see page 4, lines 25-27). For a complete description of the apparatus see fig. 1, page 3-line 20 to page 4-line 45, page 8, lines 36-42, and page 9, lines 7-46.

Shan et al. fails to expressly disclose a substantially annular passage formed in the center member, and having an inlet and an outlet adapted to circulate a fluid through the passage, wherein the passage is fluidly isolated from the processing volume. Shan et al. does not expressly disclose that the annular passage is coupled to a boss that extends through an aperture formed in the processing chamber. Miyamoto discloses forming a substantially annular passage 5 in a center member, and having an inlet and an outlet adapted to circulate a fluid through the passage, where the passage is isolated from the processing volume (see fig. 2 and its description). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to modify the apparatus of Shan et al. so as to include the annular passage of Miyamoto because this will allow for controllability of the temperature of the upper portion of the chamber.

Note that the combination of Shan et al. and Miyamoto inherently teaches the provision of apertures in the bottom of the processing chamber for the introduction of the heat transfer fluid, so as to supply the heat transfer fluid to the heat medium passage.

With respect to the use of bosses, Reimold discloses the use of bosses for connection for the supply or the removal of a heat exchanging medium (see equivalent abstract). Therefore, in view of this disclosure, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use bosses in the apparatus of Shan et al. modified by Miyamoto in order to provide connection for the supply and removal of the heat exchanging medium.

In regards to Claim 45, the bosses taught by the combination of Shan et al., Miyamoto et al., and Reimold et al. would be structurally capable of participating in aligning the base relative to the bottom of the processing chamber, based on the position of the bosses relative to the apertures to supply the heat transfer fluid. It has been held that claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Danly*, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). Also, a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the

structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987)

In regards to Claim 46, the combination of Shan et al., Miyamoto et al., and Reimold et al. does not expressly teach that an o-ring provides a seal between the processing chamber and the center section.

However, Shan et al. additionally teaches that o-rings can be provided between two components to form a vacuum seal for the processing chamber. (Page 3, Lines 39-45) Therefore, in view of this disclosure, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Shan et al., Miyamoto et al., and Reimold et al. to have an o-ring provide a seal between the processing chamber and the center section, in order to maintain a vacuum seal for the processing chamber.

13. Claims 37-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shan et al. in view of Miyamoto.

Shan et al. shows the invention as claimed including a thermally controlled apparatus for lining a processing region at least partially defined by walls of a processing chamber, comprising: a cylindrical liner section adapted to line at least a portion of the walls of the processing chamber; a removable center section (top center part of member 10) coupled to one end of the cylindrical section, the cylindrical section and the center section being exposed to the processing region and comprising a single piece structure, for substantially covering an upper surface of the chamber; a flange (top outer part of member 10); wherein the inner wall is cylindrical and projects from the

center member inside of the flange and a passage disposed in the center member having an inlet and an outlet (see fig. 1); a lid 24 disposed opposite the cylindrical wall, the lid and the wall defining a plenum at least partially therebetween (see fig. 1); a plurality of nozzles disposed in the center member providing fluid access to the plenum; a gas feedthrough fluidly coupled to the plenum through a hole disposed in the lid (see page 4, lines 25-27). For a complete description of the apparatus see fig. 1, page 3-line 20 to page 4-line 45, page 8, lines 36-42, and page 9, lines 7-46.

Shan et al. fails to expressly disclose a substantially annular passage formed in the center member, and having an inlet and an outlet adapted to circulate a fluid through the passage, wherein the passage is fluidly isolated from the processing volume. Miyamoto discloses forming a substantially annular passage 5 in a center member, and having an inlet and an outlet adapted to circulate a fluid through the passage, where the passage is isolated from the processing volume (see fig. 2 and its description). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Shan et al. so as to include the annular passage of Miyamoto because this will allow for controllability of the temperature of the upper portion of the chamber.

14. Claims 36-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shan et al. in view of Masuda et al.

Shan et al. shows the invention as claimed including a thermally controlled apparatus for lining a processing region at least partially defined by walls of a processing chamber, comprising: a cylindrical liner section adapted to line at least a

portion of the walls of the processing chamber; a center section (top center part of member 10) coupled to one end of the cylindrical section, the cylindrical section and the center section being exposed to the processing region and comprising a single piece structure, for substantially covering an upper surface of the chamber; a flange (top outer part of member 10); wherein the inner wall is cylindrical and projects from the center member inside of the flange and a passage disposed in the center member having an inlet and an outlet (see fig. 1); a lid 24 disposed opposite the cylindrical wall, the lid and the wall defining a plenum at least partially therebetween (see fig. 1); a plurality of nozzles disposed in the center member providing fluid access to the plenum; a gas feedthrough fluidly coupled to the plenum through a hole disposed in the lid (see page 4, lines 25-27). For a complete description of the apparatus see fig. 1, page 3-line 20 to page 4-line 45, and page 9, lines 7-46.

Shan et al. fails to expressly disclose a substantially annular passage formed in the base, and having an inlet and an outlet adapted to circulate a fluid through the passage, wherein the passage is fluidly isolated from the processing volume. Masuda et al. discloses an apparatus comprising a liner 103 having a heat exchanging medium supply means 104 to control the temperature of the sidewall 102. In view of this disclosure, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Shan et al. by supplying a heat transfer medium through the liner because this allows for the formation of a strong polymerized film on the exposed walls.

Response to Arguments

15. Applicant's arguments filed 8 September 2006 have been fully considered but they are not persuasive.

In response to applicant's argument that the magnets of Loewenhardt are formed as part of sidewall 14, not as part of a liner; that the magnets of Collins et al. are not formed as part of liner 60a; and that neither Loewenhardt nor Collins et al. teaches that the magnetic elements extend into a processing region, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In the instant case, in view of the disclosures of Loewenhardt and Collins et al., it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Shan et al., which does teach a liner extending into the processing region, as to further comprise a magnet disposed in the second protrusion in order to confine the plasma to the chamber.

Likewise, in response to applicant's argument that Lee teaches a heat exchanging medium path in the wall of a chamber, not in a "shield or liner;" that Masuda et al. teaches a jacket 103, but does not teach that the jacket is in contact with the bottom of the chamber; that Miyamoto teaches a flow path in a dielectric member, not in a liner; and that Reimold et al. does not teach that bosses can extend from the base through a processing chamber; the test for obviousness is not whether the features of a

secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In the instant case, in view of the disclosures of Lee and Masuda et al., it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the liner of Shan et al. by supplying a heat transfer medium through the liner because this allows for the formation of a strong polymerized film on the exposed walls and reduces instances of flaking or, alternatively, so as to control the temperature of the surfaces exposed to the gases (plasma) because this will prevent the deposition of by-products on the exposed walls. In view of the disclosure of Miyamoto, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Shan et al. so as to include the annular passage of Miyamoto because this will allow for controllability of the temperature of the upper portion of the chamber. In view of the disclosure of Reimold et al., it would have been obvious to one having ordinary skill in the art at the time the invention was made to use bosses in the apparatus of Shan et al. as modified by Lee, Masuda et al., or Miyamoto, in the manner claimed in order to provide connection for the supply and removal of the heat exchanging medium.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208

USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Conclusion

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maureen G. Arancibia whose telephone number is (571) 272-1219. The examiner can normally be reached on core hours of 10-5, Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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